

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A group III-nitride-based compound semiconductor device, comprising:

a first p-layer and a second p-layer, ~~to each of which~~the first p-layer and the second p-layer comprising an acceptor impurity is added; and

an intermediate layer provided between the first p-layer and the second p-layer,

~~wherein the intermediate layer is doped with~~comprising a donor impurity of such a concentration that a hole generated by an acceptor impurity inadvertently introduced into the intermediate layer during its manufacturing process is substantially compensated, wherein

a concentration distribution of the donor impurity in the intermediate layer is based on activation rates of the acceptor and the donor impurities.

2. (Currently Amended) The group III-nitride-based compound semiconductor device according to claim 1, wherein:

~~the donor impurity doped into the intermediate layer is doped with~~comprises a concentration distribution of donor impurity corresponding to a concentration distribution of the acceptor impurity in the intermediate layer.

3. (Currently Amended) The group III-nitride-based compound semiconductor device according to claim 1, wherein:

the acceptor impurity is~~comprises~~ magnesium and the donor impurity is comprises silicon.

4. (Original) The group III-nitride-based compound semiconductor device according to claim 3, wherein:

the donor impurity of silicon has a concentration distribution substantially 1/10 that of the acceptor impurity of magnesium.

5. (Currently Amended) The group III-nitride-based compound semiconductor device according to claim 1, wherein:

the intermediate layer ~~has comprises~~ a hole concentration equal to or less than $10^{17}/\text{cm}^3$.

6. (Original) The group III-nitride-based compound semiconductor device according to claim 1, wherein:

the first p-layer includes a p-cladding layer made of p-type AlGaN doped with Mg, and the second p-layer includes a p-contact layer made of p-type GaN doped with Mg.

7. (Currently Amended) A group III-nitride-based compound semiconductor device, comprising:

a sapphire substrate;

an n-contact layer formed on the sapphire substrate;

an n-cladding layer formed on the n-contact layer;

a light emitting layer formed on the n-cladding layer;

a p-cladding layer and a p-contact layer, to each of which an acceptor impurity is added;

an intermediate layer provided between the p-cladding layer and the p-contact layer,

a thin film p-electrode disposed on the p-contact layer;

a thick film p-electrode disposed on the thin film p-electrode; and

an n-electrode disposed on the n-contact layer, wherein

a concentration distribution of the donor impurity in the intermediate layer is based on activation rates of the acceptor and the donor impurities the intermediate layer is doped with a donor impurity in a concentration, by which holes generated by an acceptor impurity introduced therein during a manufacturing process are substantially compensated.

8. (Original) The group III-nitride-based compound semiconductor device according to claim 7, wherein:

the light emitting layer includes a multiquantum well structure formed on the n-cladding layer by laminating multiple pairs of well layers of undoped InGaN and barrier layers of undoped GaN.

9. (Currently Amended) The group III-nitride-based compound semiconductor device according to claim 7, wherein:

the thin film p-electrode is formed of ~~comprises~~ a first layer of cobalt and a second layer of gold;

the thick film p-electrode is formed by laminating a first layer of vanadium, a second layer of gold, and a third layer of aluminum in sequence, on the thin film p-electrode; and

the n-electrode is formed by laminating a first layer of vanadium and a second layer of aluminum on a partly exposed portion of the n-contact layer.

10. (Original) The group III-nitride-based compound semiconductor device according to claim 7, further comprising:

a reflective metal layer of aluminum formed on the lower surface of the sapphire substrate.

11. (New) A group III-nitride-based compound semiconductor device, comprising:

a first p-layer and a second p-layer, the first p-layer and the second p-layer comprising an acceptor impurity; and

an insulating layer provided between the first p-layer and the second p-layer comprising a donor impurity in a first concentration and the acceptor impurity in a second concentration, wherein

an amount of the donor impurity in the insulating layer offsets an activation rate of an amount of the acceptor impurity in the insulating layer.

12. (New) The group III-nitride-based compound semiconductor device according to

claim 11, wherein:

the insulating layer has a thickness of about 100 nm or less.

13. (New) The group III-nitride-based compound semiconductor device according to claim 11, wherein:

the concentration of the donor impurity in the insulating layer is substantially distributed uniformly over at least one of the first p-layer and the second p-layer.

14. (New) The group III-nitride-based compound semiconductor device according to claim 11, wherein:

an activation rate of the amount of the donor impurity is substantially equal to the activation rate of the amount of the acceptor impurity.